Syllabus- Biological Data Analytics (SBDA131C)

Unit-I:

Review of the basic concepts of Probability (up to Bayes Theorem) and Statistics (Central tendencies and standard deviations).

Unit-II:

Probability Distribution functions: Binomial, Poisson and Normal distributions, Central Limit Theorem and it's applications.

Unit-III:

Correlation and Regression analyses, Correlation Coefficients, Least square method and curve fittings, Single and multivariable regression.

Unit-IV:

Test of hypotheses, Z-test, t-test, the chi-square test, F-test and ANOVA test.

Unit-V:

Area and averages as integrals, Numerical techniques for Integration, Concept of a differential Equation and formulation of some problems in the language of differential equations, Numerical solution of differential equations.

Unit-VI:

Representation of a system of linear equations as a matrix equation, Finding inverse of a matrix, Numerical solutions of system of linear equations, Determinants, Eigenvalues and Eigenvectors and methods to find them.

Text/Reference Books:

- 1. 'Biostatistics A Foundation for Analysis in the Health Sciences' by Wayne E. Daniel and Chad L. Gross.
- 2. 'Fundamental of Biostatistics' by Bernard Rosner.
- 3. 'Biostaistics The Bare Essentials' by G. R. Norman and D L Streiner.
- 4. 'Introduction To Probability And Statistics For Engineers And Scientists' by Sheldon Ross.
- 5. 'Mathematical Methods for Physics and Engineering' by Riley, Hobson and Bence.